What is diabetes and how does it effect the human body? Diabetes is a disease in which a person's body is incapable of regulating the amount of sugar in his or her blood. Type I diabetes or juvenile diabetes is believed to be caused by pancreatitis, which is when the pancreas becomes swollen. This results in severe damage to the cells that produce insulin. (“Types” Pg.1). The insulin that produces beta cells of the pancreas is completely destroyed and the body can no longer produce insulin, within five to ten years. (“Types” Pg.1)

Insulin is needed to move blood sugar into cells, where it is then stored and later used for energy (“Types” Pg.1). Without enough insulin, glucose builds up in the bloodstream instead of going into the cells (“Types” Pg.1). Therefore, the body is unable to use this glucose for energy; this leads to the symptoms of type I diabetes (“Types” Pg.1). Genetics is also a possible for the auto-immune reaction in the body (“Types” Pg.1). In recent studies, diabetes is the sixth leading cause of death and the fifth leading cause of death from disease in 2007. (Statistics, Pg.1)

Statistics reveal 10.2% of women living in the Untied States are diagnosed with diabetes from ages 20 years and older and 11.2% are men. (Statistics, Pg. 1) Of the percentages, 3.7 million are African-Americans, 14.9 million are Caucasian Americans, and 2.5 million are Hispanic/Latin Americans (Statistics, Pg.1).

Although type I diabetes can occur at any age, it is often diagnosed in children, adolescents, or young adults. (“Top”, Pg.1) Due to diabetic’s inability to fight off infections in his or her body, diabetics are more susceptible to getting dangerous infections. An infection may make control of glucose levels more difficult, delaying recovery from an infection. (“Type of Diabetes, Pg.1)

A person has a six percent chance of developing type I diabetes if an individual has a close relative that has the disease. (“Diabetes” Pg.1) 0.4% of people who do not have a close relative with type I diabetes still have the risk of contracting the illness. (“Diabetes” Pg.1)

Common symptoms of type I diabetes include blurry vision, drowsiness, extreme hunger and thirst, frequent urination, loss of feeling or feeling a tingling sensation in the feet, and unintentional weight loss (Havas, Stephen Pg.1). Warning symptoms that a person is becoming very sick may be the first signs of type I diabetes, or may happen when the blood sugar is very high. This can cause deep rapid breathing, dry skin and mouth, flushed face, sweet-smelling breath odor, nausea or vomiting, inability to keep fluids down, and stomach pain (“Type I Diabetes”, Pg.1).

A patient diagnosed with diabetes has serious aliments throughout the body. The eyes, heart, kidney, and nerves are affected to numerous problems and damages. (Hoffman, Tracy Pg.1) Many diabetics suffer from eye disease or retinopathy brought on by their chronic condition (Hoffman, Tracy Pg.1). 75% to 95% of adults that have been a diabetic for more than 15 years have an increased chance of contracting retinopathy (Seibel, John A., page 2).

Eye disease or retinopathy occurs when blood vessels in the back of the eye become inflamed (Hoffman, Tracy Pg.1). The weak vessels can also leak blood into the eye, causing poor vision (Hoffman, Tracy Pg.1). A diabetic that has not yet reached puberty is unlikely to have diabetic retinopathy in type 1 diabetes (Seibel, John A., page 2). Often this condition is periodically tested in diabetic patients, at first, there are no symptoms (Hoffman, Tracy Pg.1) Important medical conditions such as good control of sugars, management of high blood pressure, and regulation of blood fats like cholesterol and prevent retinopathy (Seibel, John A., page 2).

Atherosclerosis or the hardening and narrowing of the arteries, is another affect type I diabetes has on the body (Mathur, Ruchi, Page 1). Macrovascular disease is a disease brought on by atherosclerosis which leads to strokes, coronary heart disease, and other large blood vessel diseases (Mathur, Ruchi, Page 1)

Type I diabetics are prone to having blood vessels in the kidney become weak and spongy. (Hoffman, Tracy Pg.1) 35% to 45% of diabetics diagnosed with type I diabetes develop kidney damage, a condition called nephropathy (Seibel, John A., page 2). Stress on the kidney’s current blood vessels occur when vessels become weak and release protein from the body through the urine, cause major problems that may result in the need for an organ transplant (Hoffman, Tracy Pg.1).

The risk for kidney disease increases over time and carries serious illnesses such as kidney failure and heart disease (Seibel, John A., page 2). It becomes apparent 15 to 25 years after being diagnosed with the disease (Seibel, John A., page 2). Doctors recommend diabetics to frequent kidney tests, to measure for any damage, due to the high danger of this occurrence. (Hoffman, Tracy Pg.1)

Diabetic’s sensory nerves that permit feeling for pressure and sensation are prone to becoming weak. (Hoffman, Tracy Pg.1) Poor blood circulation to the body can cause damage to nerves (Seibel, John A., page 2). Diabetics commonly complain about nerve damage to feet and legs. (Hoffman, Tracy Pg.1) This often leads to loss of feeling in the affected body parts (Hoffman, Tracy Pg.1). To keep from getting injuries on limbs, diabetics are tested yearly for nerve damage (Hoffman, Tracy Pg.1). Digestive problems such as nausea, vomiting, and diarrhea can occur due to the damaging of nerves (Seibel, John A., page 2). Physicians screen diabetic patients yearly to make sure body parts are functioning correctly in order to avoid infections and severe injuries (Hoffman, Tracy Pg.1).

A diabetic’s main concern is usually the legs, in which diabetics have an increased chance of suffering from serious nerve damage (Hoffman, Tracy Pg.1). Also, hardening of the arteries leads to poor blood circulation in the feet (Seibel, John A., page 2). Due to the fact that diabetics have nerve damage, injuries are more likely to go unnoticed which can lead to a number of serious infections which raises the risk of amputation (Hoffman, Tracy Pg.1).

There are various treatment methods for type I diabetes such as insulin which can be given multiple ways, for example, basal insulin, mealtime insulin, pre-mixed insulin, and pump insulin (“Type I and II”, Pg.1). Other methods include oral medication, gene therapy, and some diabetics may get gastric bypass surgery in order to increase weight loss. (“Type I and II”, Pg.1).

Diabetics should discuss a diet plan with a nutritionists, so that insulin control can be accommodated properly (“Type I and II”, Pg.1). After organizing a diet plan that works best for the diabetic. Diabetics must remember to never skip meals, especially when taking insulin injections because the blood sugar will drop too low (“Type I and II”, Pg.1). Diabetics must frequently keep track of glucose levels and use his or her own needles. (“Type I and II”, Pg.1) The usage of someone else’s needles can put the diabetics at risk for other diseases such as hepatitis C and HIV. (“Type I and II”, Pg.1)

Diabetics should always have extra insulin refrigerated in case of immediate usage. (“Type I and II”, Pg.1) Diabetics need to make sure not to place insulin in a freezer, in bright light, and in extreme heat. (“Type I and II”, Pg.1) When traveling, diabetics have to be sure to have an ample supply of insulin. (“Type I and II”, Pg.1)

The type of insulin prescribed is based on the type of diabetes in which is diagnosed. Other factors would include lifestyle, age, body’s response to insulin, and how many times diabetics are capable or willing to check blood sugar levels. (“Type I and II”, Pg.1) Bolus or mealtime insulin is usually combined with basal insulin. It is given before meals to regulate the rise of blood glucose levels after eating. (“Type I and II”, Pg.1)

Basal insulin is usually given once or twice daily which controls blood sugar levels between meals and throughout the night. (“Type I and II”, Pg.1) It can also be used alone or taken with oral medication or bolus insulin. (“Type I and II”, Pg.1)

Pre-mixed insulin is taken twice daily after and between meals. Depending on the type of bolus insulin in the mixture, it may take 15-60 minutes for the insulin to work. (“Type I and II”, Pg.1)

By using gene therapy, scientist from Baylor College of Medicine in Houston developed an experimental treatment for type I diabetes (“Natural” Page 1). The team has tempted to control the two major defects that are thought to be responsible for type 1 diabetes; autoimmune attack and damaging of the insulin-producing beta cells (“Natural” Page 1). Just as in humans, a non-obese mouse used in the experiment developed diabetes due to autoimmune (“Natural” Page 1).

“A single treatment cured about 50% of the diabetic mice, restoring their blood sugar to normal so that they no longer need insulin injections," said study co-author Lawrence Chan, Chief of Baylor’s diabetes, endocrinology and metabolism division (“Natural” Page 1). Newly produced beta cells from the autoimmune attack were added to the original gene therapy for interleukin, an essential regulator of the immune system (“Natural” Page 1).

Other diabetics may decide to get gastric bypass surgery which allows food to bypass part of the small intestine and results in weight loss (“Gastric”, Page 1). The most common gastric bypass surgery is a Roux-en-Y gastric bypass (“Gastric Page 1). In normal digestion, food passes through the stomach and enters the small intestine, where most of the nutrients and calories are absorbed (“Gastric”, Page 1). It then passes into the colon, large intestine, and the remaining waste is eventually excreted (“Gastric”, Page 1). Gastric bypass can be done by making a small incision and using instruments and a camera to guide the surgery or making a large incision in the abdomen (“Gastric”, Page 1). In 3 to 5 weeks, most people who undergo this procedure can return to their normal activities (“Gastric”, Page 1). Gastric bypass surgery is commonly recommended by a doctor if a person has not been able to lose weight with other treatments or his or her BMI, body mass index, is 40 or higher (“Gastric”, Page 1). It may also be recommended if a person has a life threatening or disabling condition related to the his or her weight (“Gastric”, Page 1). A person must have been obese for at least five years, a non-alcoholic, has not had untreated depression or another major psychiatric disorder, and between the ages of 18 and 65 in order to have gastric bypass surgery (“Gastric”, Page 1).

After surgery, it is required for a person to change and maintain their diet that is best for his or her health. (“Gastric”, Page 1). Most people begin to rapidly lose weight and proceed to lose weight for up to 12 months (“Gastric”, Page 1). Although there is weight loss, some of the lost weight may be regained (“Gastric”, Page 1). One study noted that people lost about one-third of their excess weight, the weight above what is considered healthy, in 1 to 4 years (“Gastric”, Page 1).

Although weight-loss surgeries may help an individual there are risk factors that follow the procedure such as an infection in the incision, peritonitis which is caused by a leak from the stomach into the abdominal cavity or where the intestine is connected and results in an infection, and pulmonary embolism, a blood clot in the lung (“Gastric”, Page 1). After weight-loss surgery, less than 10 out of 1000 people die (“Gastric”, Page 1).

Although type I diabetes cannot be prevented there are various ways for a person to limit their chances of contracting the disease such as monitoring any signs demonstrating either high or low glucose levels (Campbell, Ian; Page 1). To help monitor a person’s glucose level he or she should obtain a home blood glucose meter, which enables you to measure your blood sugar levels and control your insulin dose (Campbell, Ian; Page 1). Glucose levels should be measured frequently (Campbell, Ian; Page 1). Glucose should always be available for the treatment of hypoglycemia, low blood glucose (Campbell, Ian; Page 1).

A person should also learn how to properly inject himself or herself with insulin (Campbell, Ian; Page 1). A glycogen injection is rarely essential for severe hypoglycemia (Campbell, Ian; Page 1). A doctor should be seen on a regular basis to evaluate your blood glucose levels, perform check-ups on your eyes, kidneys and feet, and look for any late stage diabetic symptoms (Campbell, Ian; Page 1).

A healthy diet

A person can also reduce his or her risk in becoming a diabetic is obtaining a healthy, well-balanced diet in which he or she must attentively follow (Campbell, Ian; Page 1). A well balanced diet includes foods that are low in fat, high in fiber and carbohydrates (Campbell, Ian; Page 1). He or she person should attempt to eat an equal amount of carbohydrates each day and three main meals along with two or three snacks daily (Campbell, Ian; Page 1). Detailed dietary advice is provided from the dietician attached to his or her diabetes clinic (Campbell, Ian; Page 1).

Staying physically healthy is a very important way to reduce a person’s risk of being diagnosed with problems related to type I diabetes such as heart disease and cholesterol (Campbell, Ian; Page 1). Physical activity will also enhance a person’s health (Campbell, Ian; Page 1). According to the amount of exercise a person has done his or her insulin dose may need to be accustomed (Campbell, Ian; Page 1). Over dosage of insulin and excessive exercise may lower a person’s blood sugar level and cause hypoglycemia (Campbell, Ian; Page 1).